#16
11.29.02

01263.000700. PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	:	Examiner: Lance W. Sealey
SIMON MICHAEL ROWE ET AL.	)	
	:	Group Art Unit: 2671
Appln. No.: 09/229,898	)	
	:	
Filed: January 14, 1999	)	
	:	
For: IMAGE PROCESSING APPARATUS	)	
	:	November 19, 2002

The Commissioner for Patents
Washington, D.C. [redacted]

FOR RECONSIDERATION
AND
PETITION FOR EXTENSION OF TIME

Sir:

Applicant petitions to extend the time for response to the Office Action of June 19, 2002, to November 19, 2002. A check in the amount of $400.00 in payment of the ex-tension fee is enclosed. Please charge any additional fee and credit any overpayment to our Deposit Account 06-1205.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on
19 November 2002.
(Date of Deposit)

LEONARD P. DIANA (Reg. No. 29,296)
(Name of Attorney for Applicant)

Signature — 19 November 2002 (Date of Signature)

11/27/2002 AOSMAN1 00000075 09229898
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In response to that Office Action, Applicants request reconsideration in view of the following remarks.

Claims 1-116, 118-29, 131-66, 168-79, 181-92, 195-204 and 207-51 are now in this application. The drawing objections noted in the form PTO-948 attached to the Office Action will be tended to at such time as this application may be passed to issue.

Applicants note with appreciation the allowance of Claims 22, 24-39, 41, 44-116, 118-29, 131-66, 168-79, 181-92, 195-204, 207-36 and 238-51 and the indication that Claims 6-10 and 14 would be allowable if rewritten so as not to depend from a rejected claim, and with no change in scope. The latter claims have not been so rewritten because, for the reasons given below, their respective base claims are believed to be allowable.

Claims 1-5, 11-13, 15, 21, 23, 40, 42/1, 42/21, 43/1, 43/21 and 237 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,025,847 (Marks) in view of U.S. Patent 4,601,053 (Grumet). In addition, Claims 16-20 were rejected under Section 103(a) as being obvious from *Marks* in view of *Grumet* and U.S. Patent 5,877,779 (Goldberg et al.). Of these, Claims 1, 21, 23, 40 and 237 are independent claims.

Independent Claim 1, which will be discussed by way of example, is directed to a method of processing image data defining a plurality of sequences of images, each from a respective camera, of a plurality of objects moving in a scene to produce signals defining representations of the objects in a three-dimensional computer model.

The Office Action alleges that *Marks* discloses such a method. However, for the reasons explained below, this is incorrect.

Marks relates to "a method of generating a 3D model from an image" (abstract). The source image provided to the system is a picture of a static scene showing the static physical objects to be modelled (these comprising cupboards, etc., in a kitchen in the example given by *Marks*).

The static picture is displayed to the user on a display, and the user creates wireframe primitives that approximate the shape, size and location of the objects in the picture (col. 3, lines 3-6).

At col. 6, lines 35 to 48, *Marks* states that a first image may be taken by a digital camera pointed in a direction parallel to the z-axis of the 3D model and a second image may be taken by the same digital camera pointed in a direction parallel to the x-axis. Using the first image, the user can accurately specify the x and y values of each primitive in the 3D model but not the z values. By using the second image, the user can specify the z values.

However, comparing the contents of *Marks* to what is recited in Claim 1, Applicants note that nothing has been found, or pointed out, in *Marks* that would teach processing sequences of images, processing images from different cameras, or processing images of moving objects. Further, the purpose of processing two images is stated in *Marks* to be to allow the user to specify the z values of each primitive in the 3D model. This is a completely different purpose to the processing of sequences of images of moving objects from different cameras recited in the independent claims in the present application, as will be explained below.

The Office Action acknowledges that *Marks* does not disclose all the

specific recited details of Applicants' method as set out in Claim 1, but argues that these details are disclosed by *Grumet*.

The features recited in Claim 1, discussed in detail below, are very different to anything suggested by *Grumet*. The latter patent relates to a system in which two TV cameras, or a single TV camera with appropriate optics to provide stereo inputs, are used to determine the range of an object. The range is the distance of the object from the two cameras and not the height of the object. As set out at col. 2, line 55, to col. 3, line 1, in *Grumet*, the range is calculated by measuring the delay from the left or right side of each image to an identical corresponding point in each of the images during each line scan. This defines the parallax displacements of the object in the two images. From this measured displacement, the range to the object or a point on the object can be obtained.

Nothing found or pointed out in *Grumet* would teach:

> "processing image data from a first of the cameras to identify image data relating to objects in the scene and processing the identified image data from the first camera for each object to define an object representation in a modelling space having a height dependent on the image data for the object from the first camera"

or

> "processing image data from a second of the cameras to identify image data relating to objects in the scene and processing the identified image data from the second camera for each object to define an object representation in the modelling space having a height dependent upon the image data for the object from the second camera",

as recited in Claim 1. The Office Action alleges that these features are disclosed in *Grumet* at col. 3, lines 22-42, and in Figure 1a (cameras 10 and 12, and ranges R1 and R2). Applicants find it impossible to agree.

Each calculated range R is a distance of an object from the cameras 10, 12 and not an object height. Secondly, there is no teaching whatsoever in *Grumet* of generating an object representation in a modelling space. Further, there is no teaching whatsoever in *Grumet* of defining a height for an object representation by processing image data from a first camera or a second camera. In *Grumet*, only range (that is, distance from the cameras) is calculated. This is done by processing the signal from both cameras, and *Grumet* is totally silent about the definition of a representation of an object in a modelling space, and is also totally silent about the definition of a height for such an object.

Again, Claim 1 recites:

> "comparing the height of the representation of each object generated in dependence upon image data from the first camera with the height of the representation of the corresponding object generated in dependence upon image data from the second camera"

and

> "generating object representations in a three-dimensional computer model in dependence upon the height comparisons".

The Office Action alleges that these features are disclosed in *Grumet* by the comparison of range R1 to range R2 in Figure 1a. Again, however, this is not correct. Firstly, the ranges R1 and R2 in Figure 1a represent different distances from the two cameras 10 and 12 and do not represent object heights. Secondly, the ranges R1 and R2 are never compared; they are shown in Figure 1a merely to illustrate different distances from the cameras. Thirdly, there is absolutely no teaching whatsoever in *Grumet* of generating an object representation in a three-dimensional computer model, let alone generating an object representation in a three-dimensional computer model in dependence upon the height comparisons, as recited

in Claim 1.

Consequently, it will be understood that *Grumet* is totally silent about the features recited in Claim 1 and set out above. Indeed, it is simply not possible for such processing to be carried out in *Grumet* because no calculation of height is carried out and no object representation is generated in a three-dimensional computer model.

On a further point, it is noted that the systems of *Marks* and *Grumet* would not provide any useful benefits if used together. As explained above, in *Marks* an image of a static object (a kitchen in the drawings) is displayed to a user, and the user draws a wireframe primitive approximating the shape, size and location of the objects in the picture. The purpose of using a second image as taught at col. 6, lines 35-48, in *Marks* is to display the image to the user to allow the user to specify the z values of primitives. The system in *Grumet* requires the user to point the two cameras at an object, and the system then performs processing to calculate the distance of the object from the cameras. Such information is of no assistance to the user in *Marks* when trying to define a primitive in a three-dimensional computer model. This is because the user needs to draw the wireframe primitive around the objects in the displayed images, which are images of a three-dimensional computer model. More particularly, the distance of a kitchen from a pair of cameras would provide no information whatsoever about distances in the 3D computer model, would not assist the user in any way to draw around the objects in an image, and in fact would provide no assistance to the user whatsoever.

Accordingly, from the arguments above, it will be seen that the features recited in independent Claim 1 are clearly not suggested by *Marks* or *Grumet*, taken

separately or in any possible combination (if any).

The other independent claims under rejection are each similar to Claim 1 is respect of the arguments presented above, and are believed to be patentable over those references for at least the same reasons as discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other rejected claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In response to the rejection under Section 101, Applicants submit the following observations.

The Office Action states that Claims 43/1 and 43/21 are directed to a signal and that a signal does not fall into one of the statutory classes of invention. The Office Action further states that the claimed signals are merely non-functional descriptive material. Applicants respectfully traverse these rejections for the following reasons.

The M.P.E.P. provides the following guidance regarding allegedly nonfunctional, descriptive material:

"Descriptive material that cannot exhibit any <u>functional interrelationship</u>

> with the way in which computing processes are performed does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35 U.S.C. 101. Thus, Office personnel should consider the claimed invention as a whole to determine whether the necessary functional interrelationship is provided.
>
> Where certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, are merely stored so as to be read or outputted by a computer without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by the computer, then such descriptive material alone does not impart functionality either to the data as so structured, or to the computer." [emphases added]

M.P.E.P. § 2106(IV)(B)(1)(b).

Applicants respectfully submit that the rejected claim more than adequately provides a functional interrelationship between the signal and "the way in which computing processes are performed". Claim 43 recites a signal for causing a programmable processing apparatus to perform a method according to Claim 1 or 21. This claim language explicitly states a functional relationship between the signal and a method performed by a processing apparatus. More fundamentally, Applicants note that it has long been recognized that "a signal claim directed to a practical application of electromagnetic energy is statutory." M.P.E.P. § 2106(IV)(B)(1)(c) (citing *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 114-119 (1853)).

Accordingly, withdrawal of the rejection under Section 101 is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by

telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

Attorney for Applicants

Registration No. 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
NY_MAIN 308334 v1

GP 2671

In re Application of: SIMON MICHAEL ROWE ET AL.

Docket No. 01263.000700.

Application No.: 09/229,898

Examiner: Lance W. Sealey

Filed: January 14, 1999

Group Art Unit: 2671

For: IMAGE PROCESSING APPARATUS

Date: November 19, 2002

THE COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Transmitted herewith is a request for reconsideration in the above-identified application.

[X] No additional fee is required.

The fee has been calculated as shown below

CLAIMS AS AMENDED						
	(2) CLAIMS REMAINING AFTER AMENDMENT		(4) HIGHEST NO. PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	RATE	ADDITIONAL FEE
TOTAL CLAIMS	* 244	MINUS	** 244	= 0	x $9 $18	$0.00
INDEP. CLAIMS	* 59	MINUS	*** 59	= 0	x $42 $84	$0.00
Fee for Multiple Dependent claims $140°/$280						
			TOTAL ADDITIONAL FEE FOR THIS AMENDMENT---			

* If the entry in Column 2 is less than the entry in Column 4, write "0" in Column 5.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, write "20" in this space.
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, write "3" in this space.

☐ A check in the amount of $_____ is enclosed.

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☒ Any prior general authorization to charge an issue fee under 37 C.F.R. 1.18 to Deposit Account No. 06-1205 is hereby revoked. The Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. 1.16 and 1.17 which may be required during the entire pendency of this application, or to credit any overpayment, to Deposit Account No. 06-1205. A duplicate copy of this paper is enclosed.

☒ A check in the amount of $400.00 to cover the fee for a two-month extension is enclosed.

☐ A check in the amount of $_____ to cover the Information Disclosure Statement fee is enclosed.

☒ Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

L. P. Diana

Attorney for Applicants

Registration No. 28,496

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
NY_MAIN 308334 v1